

# *Critical Response*

## III

### Reply to Badiou, Bartlett, and Clemens

Ricardo L. Nirenberg and David Nirenberg

“But what a disappointment!” writes Alain Badiou (Alain Badiou, “To Preface the Response to the ‘Criticisms’ of Ricardo Nirenberg and David Nirenberg,” *Critical Inquiry* 38 [Winter 2012]: 362–64). As we read the words that he and his defenders, A. J. Bartlett and Justin Clemens, have produced in reaction to our essay, we can only echo the sentiment. We can understand that a man who feels the world to be full of his “enemies—who are very numerous,” cannot afford his critics’ considered engagement (p. 362). Nevertheless we are surprised by the tone of his and his supporters’ interventions. It is for the reader, not the participants, to decide who in this debate is more precise, “polite,” “informed, calm, and independent,” and who “obscure, ignorant, and impassioned” (p. 362). But perhaps it would be helpful to that reader if we reply to the respondents’ main complaints against us.

First, our method: it is certainly true that we have not read every page that Badiou has published. We have, however, read every page of the works we declare ourselves in footnote 2 to be addressing, above all, *Being and Event*.<sup>1</sup> That in order to comment on the work of a philosopher one has to cite every page of his oeuvre sounds to us like the plot of some as yet unwritten Jorge Luis Borges story. We have shown that, one by one, the elements and developments of Zermelo-Fraenkel (ZF) set theory are put to

1. See Ricardo Nirenberg and David Nirenberg, “Badiou’s Number: A Critique of Mathematics as Ontology,” *Critical Inquiry* 37 (Summer 2011): 000; hereafter abbreviated “BN.”

specious use in *Being and Event*. We leave it to others to determine how this might affect their confidence in Badiou's other writings.

Badiou complains that we have failed to pay sufficient attention to, and even "*mathematically* misunderstood," "the keystone of my entire apparatus": Paul Cohen's generic extensions (p. 363). Readers familiar with Cohen's work will see that we have neither ignored nor misunderstood Cohen's generic. We never say (to mention Badiou's only specific critique of our mathematics)<sup>2</sup> that the generic extension "aims only at conserving the ordinals" (p. 363). On the contrary, we state explicitly that the generic extension is designed to create new and enlarged models, where Cohen "forces" a certain property (such as the negation of the continuum hypothesis) to hold (see "BN," p. 000). We state as well that Cohen calls his extensions "generic" if "adding  $a$  to  $N$ " does not imply "that a new ordinal, larger than the ones already in  $N$ , is introduced into the enlarged model  $M$ " ("BN," p. 600). This statement is entirely correct (in fact it is a nearly word for word citation from Cohen) and in no way implies the view that Badiou attributes to us.<sup>3</sup> As we stated specifically at this point in our argument, Cohen's text here becomes too technical and complex to translate, within the brief compass available to us, meaningfully and without obscurity into the natural language with which we were attempting to address our readers. But we showed, to our satisfaction at least, how Badiou's own translations of that same text are both obscure and (logically) meaningless.

Indeed it seems to us that our respondents reveal much more about their own methodology and mathematics than they do about ours. Con-

2. Although Badiou taxes us with "aristocratic carelessness" and with "too many" errors of mathematics, he never documents any. Where, for example, do we confuse "sets, ordinals, and numbers" (p. 363)? We will touch below upon Bartlett and Clemens's attempts to be more specific.

3. "The chief point is that we do not wish  $a$  to contain 'special' information about  $N$  [here Cohen writes  $M$ ; his  $M$  is our  $N$  and the other way around], which can only be seen from the outside, such as the countability of  $\alpha_0$ , and will imply that any model containing  $a$  must contain more ordinals than those in  $N$ " (Paul Cohen, *Set Theory and the Continuum Hypothesis* [New York, 1966], p. 111).

RICARDO L. NIRENBERG is a retired mathematician and the editor of the literary journal *Offcourse.org*. His latest book is the novel *Wave Mechanics: A Love Story* (2008). David Nirenberg is the Deborah R. and Edgar D. Jannotta Professor of Medieval History and Social Thought in the Department of History and the Committee on Social Thought at the University of Chicago. His most recent book is (with Herbert Kessler) *Judaism and Christian Art: Aesthetic Anxieties from the Catacombs to Colonialism* (2011). The authors are father and son.

sider the invocation of the concepts of generic set and generic extension in Badiou's reply. The standard usage<sup>4</sup> does not require, as Badiou says it does, that **a** (the generic set) should not belong to the ground model **N** or be "supplementary" (p. 363). Nor is his use of the term *constructible* in that reply (he writes "in a precise sense, not constructible on the basis of that model" [p. 363]) mathematically intelligible. *Constructible* does indeed have a precise sense in this context (given by Kurt Gödel), and it is *not* the sense in which Badiou is using it. For the rest, the confusions Badiou and his team attribute to us, such as the confusion between sets and objects, are produced in part through invented citations (readers will search our article in vain for the "stupid" remark with which Badiou associates us: "in the world, there are things like rabbits or amorous jealousies that do not resemble sets" [p. 363]), in part through sophistic interpretation. When, for example, we write "huge universe of set-theoretical objects" ("BN," p. 584), our usage is standard and in fact more precise than anything achieved by Badiou's use of scare quotes in a sentence like that "in which it is historically pronounced that every 'object' is reducible to a pure multiplicity, itself built on the unpresentation of the void" (quoted in "BN," p. 585). Similarly when we write "universe," "pleroma," "cosmos," or "ocean" of set-theoretical objects, we are not jumping into the biological world, as Bartlett and Clemens claim (A. J. Bartlett and Justin Clemens, "Neither Nor," *Critical Inquiry* 38 [Winter 2012]: 376). On the contrary, we are using metaphors of natural language to describe the plenitude of set-theoretical objects. Our use, we submit, is much less obscure than their own leaps from one register of discourse to another (for example, their leap from formalizing "thinking of the inexistent" to "the condition of becoming everything" [p. 370]). The chief argument of our essay is not about the difference between set-theoretical objects and the "real world" but about the difference between set-theoretical objects of thought and other objects of thought.<sup>5</sup>

It is therefore no defense against our critique to say that Badiou's thesis "is not a thesis about the world but about discourse" (p. 365). Our point is precisely that Badiou's thesis deliberately blurs essential distinctions be-

4. The standard usage of the term *generic extension* is given in Kenneth Kunen, *Set Theory: An Introduction to Independence Proofs* (Amsterdam, 1980), pp. 186–92. This book is cited both in Badiou's *Being and Event* and in our essay.

5. As to Bartlett and Clemens's claim that Badiou has established that there are no "mathematical objects" (we do not know what they mean by "real objects"; this seems to be the sort of confusion of which they accuse us), that "set theory . . . functions *without any objects at all*" (p. 375) we would simply point out that Badiou's claim is based on his arguments about the empty set, precisely the arguments that, far from being "embedded in an extraordinarily careful demonstrative apparatus," are shown by us to be arbitrary; see "BN," section 3, pp. 590–93.

tween realms of discourse, between set-theoretical objects of thought and objects of thought that do not meet the requirements of the ZF axioms, namely, the requirement of being *apathés*: unaffected, inert. In this sense, Badiou's question—"Would they dare to say that there is in the nature of things, like stars and comets, what does not resemble equations of celestial mechanics?" (p. 364)—seems (to the extent that we can understand it) more confused about the relationship between mathematics and the "real" than our observation (mocked by Bartlett and Clemens) about chemistry and quantum physics. Our point in bringing up those examples in section 8 of our essay was that mathematical approaches to physical quiddity have not managed without paradox to reduce their objects of thought to the conditions of *apatheia* or unaffectedness required by the set-theoretical axioms.

As for the charge that we have failed to understand that Badiou's thesis "mathematics is ontology" is "a figure of philosophical *fiction*," we respond that, to the contrary, we understand all too well that Badiou's use of mathematics is a fiction (p. 368). Our goal is to bring that fictional element into high relief in order to make clearer its implications, stakes, and ends. For Bartlett and Clemens, Badiou's "mathematics equals ontology" seems to mean only that "pure mathematics is the paradigm of consistent, rational knowledge" (p. 374). We too are convinced that, now more than ever, math is an essential component of a good education; but taking math as always paradigmatic is a sign either of a poor education or of a lack of humanity. Math ought to be paradigmatic when we choose to move inside *apatheia*; it is the wrong paradigm when we deal with pathic things or thoughts. That is the point we make in section 8, which our respondents completely fail to address.

In any event we are not confident that Bartlett and Clemens have understood Badiou's mathematical arguments, let alone ours. We say this because their attempts to characterize Badiou's mathematics are as non-sensical as their attempts to criticize ours. In the defense of "mathematics equals ontology," for example, they write: "For Badiou, if mathematics equals ontology, mathematics does not equal set theory. . . . Set theory is *one* modern, 'foundational' mathematical development; that is, all prior mathematical problems can be rewritten without loss in its terms, but not vice versa. Its very success among mathematicians is testament to these powers. Yet it is not the be-all and end-all; on the contrary, Badiou is fundamentally interested in the possibility of immanent mathematical transformations" (pp. 374–75). We do not know what they mean by "immanent mathematical transformations." What seems clear is that, by pointing to other mathematical theories besides set theory, such as cate-

gory theory, they pretend to dismiss the relevance of a critique that focuses on Badiou's use of the ZF axioms. Yet despite whatever they might mean by "but not vice-versa," category theory can in fact be written in terms of set theory, and set theory, conversely, in terms of category theory. Moreover, none of these mathematics escapes the basic requirement of *apatheia* that we have pointed to as drastically limiting the range of mathematics as ontology.

As for Bartlett and Clemens's criticisms of our own mathematics, they remain either mere allusions or incorrect. Consider their footnote 3, the one place where they mention what they take to be specific errors on our part. They accuse us of conflating math and logic but give no example; they tax us with conceiving of the set-theoretical relations of belonging and inclusion as reciprocal without saying where. We can only guess that with this last they are unsuccessfully trying to grasp our formula (\*\*), by which we show that formula (\*) does not define, as Badiou maintains, those sets possessing the maximum equilibrium or balance between  $\in$  and  $\subseteq$  (p. 366). They further charge us with "depicting" set-theoretical objects in a way that "simply repeats Georg Cantor's flawed definition of a set" (p. 367 n. 5). We do use the thoroughly uncontroversial (in set theory) phrase "set-theoretical objects" but can nowhere find where we depict (or define) them, whether by repeating Cantor or not. And the one specific "error" they offer—that we define the singleton in terms that violate the axiom of foundation—is not only not an error but suggests that they have not checked Cohen's book that they elsewhere invoke. For our definition of the singleton  $\{x\}$  as  $\{x, x\}$ , following the ZF axiom of unordered pairs, is not only a standard one but is offered by Cohen himself.<sup>6</sup> Perhaps, not being familiar with the logic, they misunderstood the less formal language. We write: "define the *singleton*  $\{x\}$  as  $\{x, x\}$ , the pair consisting of  $x$  and itself" ("BN," p. 589). There is a possible ambiguity in the English here (though not in symbolic logic), the pronoun "itself" being capable of referring to "the pair" or to  $x$ . Of course we mean it to refer to  $x$ , as does Cohen, but Bartlett and Clemens prefer to take it to refer to the pair  $\{x, x\}$  in order to charge us with the same sin against logic that we found Badiou committing when he defined the event  $e_x$  as the set containing, among other things,  $e_x$  itself. (We note that they do not respond to this, or any other, of our specific arguments about Badiou's mathematics.)

A final word on the one charge we have to this point left unaddressed, that of our politics. It seems to us something of a contradiction that Badiou, Bartlett, and Clemens can insist that politics, ontology, and mathe-

6. See Cohen, *Set Theory and the Continuum Hypothesis*, p. 51.

matics are “perfectly disjoint domains” and yet attack our ontological and mathematical arguments on the grounds that our politics remains “concealed” or that our “ideological affiliations” are “at once evident and obscured” (pp. 364, 362, 367). How does the fact that one of us (Ricardo) has recently published a piece that makes critical mention of Badiou provide evidence of “commitments . . . obscurely avowed”? (p. 366). As for the other’s (David’s) “The Politics of Love and Its Enemies,” the piece mentions neither Badiou nor, *pace* Bartlett and Clemens, Giorgio Agamben and is only very indirectly concerned with Žižek. But even if it were indeed a critique of “Badiou’s fellow travelers,” as Bartlett and Clemens allege, how would the existence of such a critique in any way affect the truth or falsehood of our present arguments about Badiou’s uses of set theory? (p. 380). The strategy here seems to be to displace all philosophical judgment onto a priori political commitments and to reinforce the move with a further displacement of the political into the psychological: “It is difficult for people not to represent their own self-harming self-interests in the name of ‘our freedom’, and one cannot displace the ruses of such an operation by means of argument or demonstration” (p. 380). With two such unfalsifiable tenets as their foundation, it is not surprising that our respondents have preferred rhetorics of enmity, stupidity, and conspiracy to reasoned discourse.

Nevertheless, let us restate our commitments. We believe it is the task of philosophy to help us distinguish between necessity and contingency in their various contexts, including the political. As we wrote in our essay, “the difference need not be absolute; still, in the discovery of, and respect for, that difference lies whatever we may mean by freedom . . . . But insofar as [Badiou’s] mathematical ontology disguises the contingent in robes of necessity, it can only diminish our freedom” (“BN,” p. 612). What did we mean when we wrote that Badiou’s use of logical-mathematics language confuses necessity and contingency? We meant that for him logical-mathematical language is the necessary vessel of philosophical truth; that he considers the ZF axioms (or the axioms of category theory, or any other axioms for mathematics) as “the law of Ideas,” by which he means all ideas;<sup>7</sup> and that he believes his unjustified interpretations of those axioms should have a hold on our minds stronger than that of puns or Pythagorean snares. Secondly, we also mean that Badiou’s deployment of his logico-mathematical apparatus serves the rhetorical purpose of suggesting to the nonmathematical reader that his “entire apparatus” is as necessary as most people believe  $2+2 = 4$  to be.

7. Alain Badiou, *Being and Event*, trans. Oliver Feltham (London, 2005), p. 66.

In other words, our philosophical opposition is to the model of necessity on offer. Bartlett and Clemens respond that “for Badiou, necessity is precisely that to which the axiomatic form denies provenance. An axiom itself *decides*, it is a decision and declaration at once. Moreover, it itself decides necessity or what *will have been* necessary to render the decision true, a ‘forcing’ into the future perfect” (p. 376). We can only repeat what we demonstrated in section 3 of our essay: it is not the axiom but Badiou who arbitrarily decides that not only number and math but much else besides *must* begin with the declaration “there is an empty set.” We shudder at the phrase “a ‘forcing’ into the future perfect,” a shudder caused not by fear of the new but of the déjà vu. That shudder represents the sum total of our politics.